UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,394	09/19/2006	Shinsuke Fukuoka	0216-0521PUS1	2695

2292 7590 05/13/2008
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
BOYKIN, TERRESSA M	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
05/13/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/593,394	FUKUOKA ET AL.	
	Examiner	Art Unit	
	Terressa M. Boykin	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4-11-07;12-19-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d),

which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C.

102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

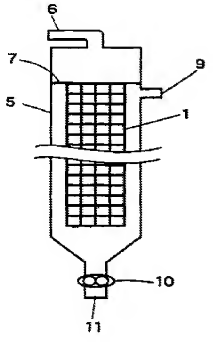
Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 10488685 see pages 2-22 and discussion below.

EP 1048685 discloses a guide-wetting fall polymerization reaction zone which has at least one guide securely held therein and extending downwardly therethrough, and allowing the polymerizable material to fall along and in contact with the at least one guide through the guide-wetting fall polymerization reaction zone, to effect a guide-wetting fall polymerization of the polymerizable material, thereby obtaining a polymer, wherein the guide is a perforated wall-surface guide.

Note claim 6 of the reference discloses that the said polymerizable material feeding zone and the said guide wetting fall polymerization reaction zone are separated form each other though a material distributing plate having at least one hole wherein the guide is arranged in corresponds wit the hole of the distributing plate.

The figure of the reference of Figure 3 (a)

FIG.3 (a)



Thus, applicant's claim 1 is anticipated by EP 1048685.
Note that each limitation of applicant's claim1 is represented by the reference EP 1048685; wherein:

a guide-wetting fall polymerizer device EP 1048685 paragraphs [0017] [0023] [0024]

(a) comprising: a casing having an inlet for said molten prepolymer, a molten prepolymer feeding zone positioned subsequent to and communicating with said inlet, [0024] line 49 page 5 and claim 5 and [0095] line 14.

a withdrawal device [0077]

an evacuation device provided in association with said polymerization reaction zone of said casing, and a withdrawal device provided in association with said outlet of said casing, EP 1048685 paragraphs [0076] [0077] [0095] line 17 and figure 1 outlet 11.

said polymerization reaction zone having a space which has a guide securely held therein and extending downwardly therethrough, [0065]

said polymerization reaction zone being separated from said molten prepolymer feeding zone through a distribution plate having a plurality of holes, through which said molten prepolymer feeding zone communicates with said polymerization reaction zone,

wherein, when a molten aromatic polycarbonate prepolymer is introduced into said polymerization reaction zone, said molten prepolymer falls along and in contact with the surface of said guide in said polymerization reaction zone, thereby effecting polymerization of said molten prepolymer to produce an aromatic polycarbonate,

wherein said casing in said guide-wetting fall polymerizer device (a) has, at its polymerization reaction zone, an upper portion defined by an upper peripheral side wall and a lower tapered portion defined by a lower peripheral wall which is inclined toward said outlet and continuously extends downwardly from said upper peripheral side wall, said lower tapered portion having said outlet at the bottom thereof
,
so that, when the produced aromatic polycarbonate falling off from said guide gets in contact with an inner surface of said lower peripheral wall of said lower tapered portion, the aromatic polycarbonate flows down on the inner surface of said lower peripheral wall to said outlet,

wherein said guide-wetting fall polymerizer device (a) has the following characteristics (1) to (5) as will be discussed below:

(1) the opening area (A) (m^2) of the horizontal cross section of said upper portion of said casing satisfies the following formula:

0.7 <. A <.200; EP 1048685. [0057] page 12

(2) said guide-wetting fall polymerizer device (a) satisfies the following formula:

20. <. A/B. < 1,000

wherein A is as defined above for said characteristic (1) and B represents a minimum opening area ($m.^2$) of the cross section of said outlet; [0055]-[0064] pages 12-14.

(3) the angle (C) (^{o}) between said upper peripheral side walls of said upper portion and the inner surface of said lower peripheral wall of said lower tapered portion,

as measured with respect to a vertical cross section of said casing, satisfies the following formula:

$120 \leqq C \leqq 165;$ (EP 1048685. page 12-14 [0055]-[0064])

(4) the length (h) (cm) of said guide satisfies the following formula:

$150 \leqq h \leqq 3,000$; and

(5) the total outer surface (S1) (m^2) of said guide satisfies the following formula:

$2 \leqq S1 \leqq 5,000,$ area (EP 1048685. [0059]-[0062])

, and wherein the aromatic polycarbonate is produced at a rate of 1 t/hr or more. Note table 1 and 2 and [0075]

With regard to the characteristics (1) to (5) (note EP 1048685. pages 12,13 and 14 and paragraphs [0052] to [0075].)

With regard to claim 2 wherein the polymerizer device has an upper portion of said casing which is cylindrical, said lower tapered portion of said casing is reverse conical, and said outlet is cylindrical, wherein the inner diameter (D) (cm) of said upper portion, the length (L) (cm) of said upper portion, the inner diameter (d) (cm) of said outlet and said length (h) (cm) of said guide satisfy the following formulae:

$100 \leqq D \leqq 1,000,$

$5 \leqq D/d \leqq 50,$

$0.5 \leqq L/D \leqq 30,$ and

$h-20 \leqq L \leqq h+300.$

(Note tables 1 and 2 of EP 1048685.)

With regard to claim 3 wherein said guide is columnar, and the diameter (r) (cm) of said guide satisfies the following formula:

$0.1 \leqq r \leqq 1.$

(Note table 1 and 2 EP 1048685.) .

With regard to claim 4 wherein said guide is columnar, and the diameter (r) (cm) of said guide satisfies the following formula:

$0.1 \leqq r \leqq 1.$

(Note EP 1048685 page 14, [0066], [0078]).

With regard to claim 5 wherein said guide is in the form of at least one net, or a jungle gym-like three-dimensional structure, wherein, when said guide is in the form of a plurality of nets, the nets are securely arranged substantially in parallel. See figure 1 number 4 is directed to a plurality of nets.

With regard to claim 6 wherein said casing has a vacuum vent through which said evacuation device communicates with said polymerization reaction zone, and wherein each of said casing, said distribution plate, said guide, said vacuum vent, and said outlet is made of stainless steel. See EP 1048685 figure 1 number 9

With regard to claim 7 which has connected thereto at least one additional guide-wetting fall polymerizer device which has said characteristics (1) to (5), with the proviso that when a plurality of additional guide wetting fall polymerizer devices are used, the polymerizer devices are connected in series. See page 13 lines 1-3 and [0060]

With regard to claim 8 which has one additional guide wetting fall polymerizer device connected thereto, and wherein said total outer surface area (S1) (m^2) of the guide used in said guide-wetting fall

polymerizer device (a) and the total outer surface area (S2) (m^2) of the guide used in said additional guide-wetting fall polymerizer device (b) satisfy the following formula:

$$1 \leqq S1/S2 \leqq 20.$$

See EP 1048685 page 13 lines 1-3 and paragraphs [0060]

With regard to claim 9 wherein the aromatic polycarbonate has a halogen atom content of 1 ppb or less, and contains at least one metal compound selected from the group consisting of an alkali metal compound and an alkaline earth metal compound in an amount of from 0.01 to 0.1 ppm in terms of the total content of alkali metal atoms and alkaline earth metal atoms; (EP 1048685 , [0084] [0085])

With regard to claim 10 wherein the aromatic polycarbonate according to any one of claims 6 to 9, comprises a plurality of aromatic polycarbonate main chains; (Note EP 1048685 page 14, [0066], [0078]).

Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

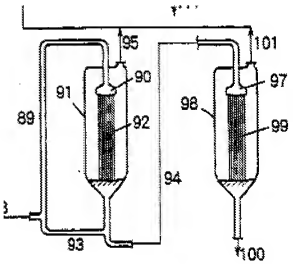
Claims 1 - 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5747609 see abstract, col. 25 line 18 through col. 26 line 3 claims in view of EP 1 048 685 col. pages 12-15.

. Note USP 5747609 discloses in col. 25 lines 18- col. 26 line 3 a molten prepolymer which is polymerized and flows through a guide wetting fall (98) in example 1 and figure 1 (98) which reads on features (I) and (II) in applicants claims except for the parameters of applicants' claims 1 – 4 and 8.

An aromatic polycarbonate was produced in accordance with a system as shown in FIG. 1. The system of FIG. 1 comprises (i) a first stage and a second stage reactive distillation (conducted using continuous multi-stage distillation columns 1 and 20, respectively) for producing diphenyl carbonate, (ii) a first stage and a second stage agitation polymerization [conducted using agitation type polymerizer vessels 71, 71' and agitation type polymerizer vessel 73, respectively] for producing a prepolymer while withdrawing by-producing phenol which is recycled to the above-mentioned continuous multi-stage distillation column 1, (iii) a free-fall polymerization (conducted using free-fall polymerizer 91) for increasing the degree of polymerization of the prepolymer while withdrawing by-producing phenol which is recycled to the above-mentioned continuous multi-stage distillation column 1, and (iv) a guide-wetting fall polymerization (conducted using guide-wetting fall polymerizer 98) for producing an aromatic polycarbonate while withdrawing by-producing phenol which is recycled to the above-mentioned continuous multi-stage distillation column 1.

In free-fall polymerization of prepolymer (c), free-fall polymerizer 91 was used. Free-fall polymerizer 91 has a perforated plate 90 which has 80 holes having a diameter of 5 mm. The free-fall distance is 4 m. In free-fall polymerizer 91, prepolymer (c) fed to the feeding zone (having perforated plate 90) from conduit 89 was allowed to pass through perforated plate 90 and fall freely in the form of filaments 92 to perform a free fall polymerization under conditions such that the reaction temperature was 250.degree. C. and the reaction pressure was 5 mmHg, thereby obtaining prepolymer (d), while recycling a portion of prepolymer (d) to the feeding zone of polymerizer 91 through conduits 93 and 89 at a flow rate of 50 kg/hr. An evaporated gas (containing phenol by-produced during polymerization) distilled from the top of first free-fall polymerizer 91 was led into liquid-seal type vacuum pump 84 through conduits 95 and 96, and roots blower 83. When the volume of prepolymer at the bottom of free-fall polymerizer 91 reached a predetermined level, a portion of prepolymer (d) was continuously fed to wire-wetting fall polymerizer 98 at a rate such that the volume of prepolymer (d) in free-fall polymerizer (d) was constantly maintained at the predetermined level.

The portion of the reaction vessel applicable to the rejection is drawn below:



Thus, the reference discloses a method for producing an aromatic polycarbonate using a guide wetting fall device (after a series of distillation columns etc.) prepared from the same components as claimed by applicants except for the particular description of the parameters of the polymerization vessel or guide wetting fall device, i.e. characteristics (1)-(5) as claimed in claims 1, 2 , 3 , 4 and 8 of applicants' claimed invention

First, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to employ particular amounts and/or parameters as known in the art, since **EP 1048685** discloses the use of a guide wetting fall device having the same parameters as claimed. Note pages 12-15 and figure 3a. Further, it is prima facie obvious to determine workable or optimal values within a prior art disclosure through the application of routine experimentation. *See* In re Aller, 105 USPQ 233, 235 (CCPA 1955); In re Boesch, 205 USPQ 215 (CCPA 1980); and In re Peterson, 315 F.3d 1325 (CA Fed 2003).

Consequently, the claimed invention cannot be deemed as unobvious and accordingly is unpatentable.

Provisional Obviousness-type Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 10/592394. Although the conflicting claims are not identical, they are not patentably distinct from each other because the guide wetting device for making a polycarbonate is claimed in the related case and is the same device as the instant application. It would have been obvious to use the device of the related cases since the method discloses use of the wave guide device in the claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terressa M. Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday-Thursday 10-5:30 Friday (work at home).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Terressa M. Boykin/
Primary Examiner, Art Unit 1796